DOCUMENT RESUME

ED 091 920 EC 062 157

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| TITLE | Reports by the Members of the Institution of Defectology of the APS USSR/Moscow/to the First Congress of the International Association for the Scientific Study of Mental Deficiency. |
| INSTITUTION | Academy of Pedagogical Sciences of the USSR, Moscow. Inst. of Defectology. |
| PUB DATE | 67 |
| NOTE | 78p.; Congress held at Montpellier, France, September 1967; One paper is in French; Document may reproduce poorly |
| EDRS PRICE | MF-$0.75 HC-$4.20 PLUS POSTAGE |
| DESCRIPTORS | Educational Trends; Exceptional Child Education; *Exceptional Child Research; Foreign Countries; *Learning Processes; *Mentally Handicapped; *Psychological Characteristics |
| IDENTIFIERS | *Union of Soviet Socialist Republics; USSR |

ABSTRACT

Presented are 14 reports given by members of the Institute of Defectology in Moscow to the First Congress of the International Association for the Scientific Study of Mental Deficiency held in Montpellier, France, in 1967. The papers have the following titles: "The Soviet Education Scheme for Mentally Retarded Children", "Main Trends in Studying the Problem of Oligophrenia", "Debatable Problems in Clinical Aspects of Oligophrenia (mental retardation)", "Psychological and Pedagogical Study of the Mentally Retarded Child as a Basis of Correction of His Development Deficiencies", "The Major Development in Mentally Retarded Children Studying at School", "Peculiarities of the Electrical Activity of the Brain in Oligophrenia and Similar States", "The Differential Diagnostics of Maldevelopment in Hard of Hearing Children from Oligophrenia", "Role of Actions in Cognition of Objects by Mentally Backward Children", "Pedagogical Studies of Children Aimed at Differentiating Oligophrenia from Similar Conditions", "Patterns of the Intellectual Defect in Children and Adolescents with Anomalies in the System of Sex Chromosomes", "Spatial Orientation in Mentally Retarded Children", "Development of Perception by Touch in Oligophrenic Children", "Visual Perception of Portrayed Objects by Retarded Pupils", and "Corrective Work with Mentally Retarded Children Suffering from Cerebral Paralysis." (DB)

ED 091920

# REPORTS

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by the members of the Institute of Defectology of the APS USSR /Moscow/ to the First Congress of the International Assosiation for the Scientific Study of Mental Deficiency

Montpellier, France
September 12-20 1967

EC062157

# R E P O R T S

by the members of the Institute of Defectology of the APS USSR (Moscow) to the First Congress of the International Association for the Scientific Study of Mental Deficiency.

M o n t p e l l i e r , F r a n c e

September 12 - 20, 1967

Institute of Defectology, Moscow, USSR

# THE SOVIET EDUCATION SCHEME FOR MENTALLY RETARDED CHILDREN

T.A. Vlasova,

The education of children with various abnormalities in their development was one of the major novelties brought about in our country with the establishment of the new social system. One of the first legislative acts of the Soviet state placed the education of abnormal children within the framework of the public education system, financed out of the state budget, boarding schools being thoroughly maintained by the state.

General compulsory education was introduced for abnormal children of school age, including mentally retarded children capable of being taught.

The main type of educational establishment for the debile children is the special eight-year school which we call in the U.S.S.R. the a u x i l i a r y school. Some auxiliary schools have department or classes for trainable imbeciles.

There are both boarding and non-residential auxiliary schools, the latter providing a prolonged school day. Some schools are attended by both resident and non-resident pupils.

Boarding schools are located mainly in the regional centers, for the convenience of children who cannot travel long distances every day. Some ordinary schools have classes for mentally retarded children but their number is insignificant (approximately 0.04%) compared to the number of pupils in auxiliary schools.

A study of the work of auxiliary schools and special classes at ordinary schools has shown that the teaching of

children at the auxiliary schools has certain advantages.

This problem deserves to be dealt with in detail since some educationalists believe that mentally retarded children should be taught in special classes at ordinary schools and even in the same class as normal children. The argument in favour of this view is that association with normal children of their own age has a beneficial effect on their general development and to a certain extent places them into conditions they will encounter subsequently in their working carreer.

The studies carried out at the Institute of Defectology over many years have shown retarded children attending classes for normal children in public schools, make poor progress. After wasting a number of years in this manner, they lose the little self-confidence they formerly had and suffer the consequences of a neglected education; they are subsequently transferred to auxiliary schools as overgrown pupils with little time left for correction and compensation of their defect.

Our observations have shown that the effectiveness of special auxiliary classes at ordinary schools is rather low. Proper and thorough corrective and educational work with mentally retarded children requires more than a single qualified teacher.

To be able to select adequate means and methods of correction, education and treatment with due account for the peculiar abnormalities in the development of each child, the defectologist must constantly be in touch with the psychoneurologist, the speech therapist, specialists in corrective physical education, etc.

The organization of the daily life of the children, a wholesome regimen and conditions of vocational training of juveniles cannot be provided for as well for a single class in a public school as at special schools.

As regards community ties, the auxiliary school is in the same position as the public school to ensure that the children are involved in the various aspects of work and cultural life. As far as they are able, the pupils of our auxiliary schools take part in all the activities and functions of our children's and youth organisations.

Senior-grade pupils receive vocational training at industrial plants, construction sites and on state farms.

We believe that this is convincing evidence that the auxuliary schools can provide the conditions best suited for genuine corrective training and educational work and prepare each retarded pupil for independent life and work within his abilities.

Criticism of the auxiliary boarding schools has been voiced on the grounds that the child is separated from the daily influence of home life for a long period of time. Undoubtedly there is a certain amount of justice in this. But, first, not all families are able to provide a proper education for an abnormal child. Placing the child under the care of a patron or guardian as is the practice in some countries, can hardly be consudered a happier substitute for the family than a well-organized boarding school. Second, the boarding school always can and must find opportunities to arrange meetings between the children and their parents as frequently as possible.

A study of the life of the children at boarding school

has shown that correct and solicitous approach neither the children nor their parents experience anxiety or loneliness.

We defectologists believe that the fact that we have the means to organise the required number of auxiliary schools, including boarding schools, to train and educate all mentally retarded children, is one of the great cultural and humanitarian gains of our society. Naturally, it is more expensive to maintain special auxiliary schools that the usual public schools or special classes at ordinary schools. However, from the socio-pedagogical point of view this is fully justified.

The teaching and education at auxiliary schools is based on a number of theoretical principles. Some are general educational and others are specific.

The main general pedagogical principles of teaching and education embrace what are known as the scientific and systematic character in the learning of the study material and the character-building aspect of education. These are also the basic principles in special education. They are reflected in determining the scope of education, the systematisation of the study material and its significance for assuring the maximum development of the personality of the retarded child.

The theoretical basis for the process of education and character-building to be used for retarded children is based on the peculiarities of their mental development.

On the basis of pathogenetic analysis of various forms of mental retardation, we distinguish oligophrenia as a peculiar from mental insufficiency due to various etiological factors (pathological heredity, chromosomic aberrations, injury of the fe-

tus, birth pathology and residual conditions after organic injury of the brain, which occur during the intra-uterine period or at an early age /up to a year and a half/). Disturbances in higher nervous activities, first of all an insufficient flexibility of nervous processes in the early stages of development of the child impede the formation of complex functional systems which are prerequisite for the normal analytic-synthetic mental activity. These result in underdevelopment of the most important aspects of mentality which leads to defects in cognitive activity, and particularily in thinking, and has a peculiar effect on the development of the personality of the retarded child.

Depending on the specific structure of the defect- on its depth and qualitative features- the deviations in the mental development of each child differ. However, a characteristic feature of all oligophrenic children is insufficient differenciation in perception of the surrounding world, objects and their spatial relationship. Also typical of these children is the incompleteness and inaccuracy of images, merging of images of similar objects, difficulty in logical memorizing of material perceived and learned. As a rule, they cannot apply the way of solving of a task to a similar one. Characteristic of these children are defects in both verbal-logical and concrete thinking. Complex forms of analysis and synthesis, comparison and generalisation, as well as relationship between the cause and effect are most typical snags.

Their thinking is characterized by absence of complex multi-stage progress from sensory cognition to abstract thinking, while the performance of mental and practical tasks is characterized by insufficient purposefulness and poor motivation.In the

sphere of affection and volition, oligophrenic children frequently exhibit inadequate self-appraisal, they are inert, and find it difficult to switch from one form of activity to another. The part speech plays in the development of perceptive processes is well known and so is the fact the speech of oligophrenic children is greatly underdeveloped. Corrective teaching process, aimed at raising the cognitive activity and formation of the personality of retarded children, is aimed precisely at overcoming the above peculiarities.

Observation has shown that the cognitive activity of oligophrenic children develops significantly when teaching is based on verbal-visual means and also includes active, purposeful practical actions with the objects studied, concrete figurative reproduction of the material read, step-by-step solution of a task. Very important in improving the process of cognition is the social significance of the motives towards fulfilment of different tasks.

Although oligophrenia most frequently is due to an organic affections of the brain, the oligophrenic child is capable of development since this affection is of a residual character. The process of development is governed by the general basic laws of development but has specific peculiarities that are determined by the nature of the disturbance.

Hence, the problem of the relationship between teaching and development deserves special theoretical consideration. Our psychological, pedagogical and clinical investigations are based on advanced by the late Professor L.S. Vygotsky fruitful theory on the leading part education plays in the development of the child and that each child has two levels of development- the actual level (i.e., the one actually attained), and the next zone of development which represents the child's potential capabilities. Instruction will be effective only if it draws upon the

next zone of development. When the process of instruction is properly arranged (specially arranged presentation of material, helping the child by leading questions, instructions, demonstration, etc.), this results in the formation of new knowledge and abilities which become the actual level of development and prepare the next zone of development. As is known, the possibilities for spontaneous development without special training are very limited in the case of the abnormal child.

Research and practice also show that teaching is more effective and the pace of development are much greater if the process of instruction is arranged at the level of greatest difficulty but one that does not go beyond the child's capabilities.

There is probably no other sphere where the favourable effect of systematic education is so evident as it is in the teaching of retarded children.

The higher psychical functions- voluntary attention, logical memory, speech, thinking- being phylogenetically of later formations are dependent on social conditions, for they are formed postnatally in the course of social relations and activity. And, under the influence of education, these functions can also be developed in retarded children despite their original biological insufficiency. This is precisely the reason why the clearly circumscribed scope of knowledge and habits acquired by the children through corrective instruction has a compensating effect on the development of cognitive activity, emotional and volitional sphere and personality of the mentally retarded child that cannot be attained by mechanical training of his sensory sphere, memory and behavioural habits. Hence, we are firmly convinced of the necessity of compulsory education for mentally retarded children in specially organized conditions, aimed at the development of

all the potentialities of each child. Educational and character buiding work at auxiliary schools envisages a clearly outlined program, range of general educational knowledge and requirements presented to the mental, moral, aesthetic, physical and work training of the children.

In view of this, the eight-year auxiliary schools of the Soviet Union have a compulsory uniform level for the scope of general education approximately equal to that of the elementary (four-year) schools with a slightly greater amount of material in a number of general educational subjects. All our auxiliary schools work according to a uniform curriculum and syllabus approved by the Ministry of Education.

The curriculum includes such general educational subjects as native language, arithmetic, an elementary course in history, the constitution, geography, nature study, physical education, singing, drawing, individual speech-correction lessons and corrective gymnastics. Vocational training, both industrial and agricultural, as well as didactic labour occupies a significant place in the curriculum.

The special schools are provided with special textbooks on all subjects for pupils of all classes and the teachers are provided with methodological aids.

An individual approach in teaching makes it possible to promote children who make more than average progress in a particular subject.

The choice of adequate methods for correction of abnormal development of mentally retarded children depends to a considerable degree on proper selection of the school contingent. Only oligophrenic children are sent to special schools.

Education at a special school does not benefit children who outwardly resemble oligophrenics but are actually not debiles, for example children whose hearing was impaired at an early age or those with temporary backwardness of mental development, pedagogical negligence, and other forms of "pseudo-oligophrenia". It retards their development and distracts the teacher from the task of correcting those children who are genuinely mentally retarded. A narrowing down of the conception of oligophrenia, drawing of the line between oligophrenia and pseudo-oligophrenia conditions, and also the establishment of a differentiated system of special schools for children with various types of abnormalities facilitates proper choice of the school contingent. The result of the above, plus all the measures taken to promote better working and living conditions, protection of mothers and infants, and free medical care is, that with all mentally retarded children of school age enrolled for instruction the contingent of these children in relation to the same age groups in the general school ranges between 0.6 and 0.8 per cent.

Considering how extremely difficult it is to make a differentiated diagnosis and to discover the real structure of the defect in mental development, in selecting children for corrective education we take various approaches. The child is thoroughly examined clinically by medical specialists in various fields and is also subjected to a profound psychopedagogical, logopedic and pathophysiological examination.

Most mentally deficient children, particularly those with a slight degree of debility which is not discovered at a pre-school age, enter the public schools. Only when the child begins to lag he is sent to a medico-pedagogical commission that selects children for special schools. In doubtful cases the child is ex-

signed to a diagnostic group at an special school, where he is kept under observation for 8 to 10 days. The study of the child is continued within the special school also. Should it be discovered that the child is not really mentally deficient he is either returned to the ordinary school or transferred to an appropriate special school.

The correctness of the system of instruction and education is objectively verified by how well auxiliary schools graduates fit onto society and work. Data obtained from a study of auxiliary schools graduates shows that the vast majority successfully do the work they were trained for at the school.

The exceptions are those graduates whose oligophrenia is complicated by emotional and volitional disorders.

It is generally known that the earlier special education begins the better the results to be expected in the development of the personality of the abnormal child. Hence, for us the problem of the general development of the network of pre-school institutions for mentally retarded children is particularly urgent.

The success of the system of education and character-building in the last analysis, is determined by the teacher who, in turn, determines the fate of the child. The complex nature of the defect due to oligophrenia requires that the teacher be a highly qualified specialist in his particular field and also have broad psychological, logopedic and, to a certain degree clinical orientation. For this reason only higher education is provided for special teachers. Special teachers salaries are 25 per cent higher than those of teachers of ordinary schools.

The system of education of mentally-retarded children has developed not only by trial and error, by choosing the best experience but also on the basis of the findings of the science

that studies these children and the many allied sciences (psychology, medicine, medical genetics, biochemistry, etc.).

The Research Institute of Defectology, within the framework of the Academy of Pedagogical Sciences of the USSR, has been established in our country for the scientific investigation of the problems of comparative study, education and character-building of children with various types of abnormalities. Integrated investigation of all types of abnormalities resulted in the creation of favourable conditions for a comparative study of the children. This helps to improve the solution of both diagnostic problems and the system of differentiated education and character-building for all abnormal children, including the mentally retarded ones.

By means of our investigations and by drawing on the best practices in foreign countries we strive to find the optimal conditions for education and character-building of mentally retarded children for, as the great physiologist I.P.Pavlov said,"nothing remains stationary, unyielding, and everything can always be attained or changed for the better, when appropriate conditions are provided".

U R S S

Institut scientifique de défectologie de l'académie des sciences pédagogiques de l'URSS

# SYSTEME D'INSTRUCTION ET D'EDUCATION DES ENFANTS MENTALEMENT ARRIERES EN URSS

Vlasova T.A.

Parmi les grandes réformes sociales effectuées dans notre pays grace à l'installation d'un nouveau régime social il faut citer les mesures destinées à l'instruction et à l'éducation des enfants avec les différentes anomalies de développement. Par les premiers actes législatifs de l'Etat soviétique l'instruction et l'éducation de tous les enfants handicapés ont été incluses dans le système général d'instruction publique de l'Etat et ont été portées au budget de ce dernier et les écoles-internats ont été prises complétement à la charge de l'Etat.

On a décrété l'instruction générale obligatoire des enfants déficients d'age scolaire y compris les enfants mentalement arriérés mais capables de suivre l'enseignement,

Pour les enfants débiles c'est l'école de perfectionnement spéciale avec une ecolarité de 8 ans qui est le type principal d'établissement d'enseignement.

Dans plusieurs écoles de perfectionnement il y a des sections ou des classes pour les imbeciles capables de suivre l'enseignement.

Les ecoles de perfectionnement se divisent en écoles-internats et les écoles-externats avec la journée prolongée. Il existe également des écoles du type mixte où une partie des enfants est logée à l'internat et une partie sont des externes.

Les écoles-internats chez nous, se trouvent principalement dans les centres régionaux car le transport quotidien des enfants sur une grande distance dépasse leurs forces. Il existe un certain nombre de classes pour enfants mentalement arriérés près des écoles normales, mais le nombre d'eleves dans ces classes est insignifiant, il est à peu près 0,04% de celui des élèves des écoles de perfectionnement.

L'étude du travail des écoles auxiliaires et des classes spéciales dans les écoles normales a mis en valeur les acantages certains d'instruction des enfants dans les écoles auxiliaires.

Il faut nous arreter avec un peu plus de détails sur cette question car il existe pas mal de partisans d'instruction des débiles mentaux dans les classes speciales des ecoles normales et même dans les classes communes avec les enfants normaux. Ceci est argumenté par cette assertion que le contact avec les enfants normaux exerce une action favorable sur le développement général des enfants mentalement arriérés et que le séjour de ces derniers dans une école normale les met jusqu'à un certain point aux memes conditions de contact qu'ils retrouveront par la suite dans leur vie de travail.

Les recherches de plusieurs années effectuées à l'Institut de défectologie montrent que les débiles mentaux qui font leurs études dans une école normale dans les classes communes n'avancent pas dans leur développement. Ayant perdu inutilement plusieurs années, ils perdent confiance dans leurs forces qui déjà sans cela sont faibles, ils ressentent sur eux-memes toutes les suites de la négligence pédagogique et passent a l'école de perfectionnement à un age trop avancé n'ayant plus que peu de temps pour la correction et la compensation de leur état.

Les classes de perfectionnement près des écoles ordinaires, d'après nos observations sont également peu efficaces. Pour un travail d'éducation et de correction utile et profonde avec les enfants mentalement arriérés il ne suffit pas de n'avoir qu'un seul pédagogue même très qualifié. Il faut que les dirigeants de l'école puissent comprendre la spécificité du travail avec ces enfants et puissent le diriger.

Le travail méthodique de l'équipe des pédagogues d'une école spéciale a une valeur inestimable pour le perfectionnement de la compétence de chaque pédagogue.

Le choix des voies adéquates et des méthodes de travail d'éducation et de correction ainsi que du travail médical, en tenant compte des particularités du développement anormal de chaque enfant demande un contact quotidien entre le pédagogue-défectologue et le pédiatre-psychoneurologiste, le logopède, le spécialiste de la culture physique, etc.

Tout le régime de vie des enfants dans une école spéciale, le régime hygiénique du jour, les conditions pour la préparation des adolescents, jeunes gens et jeunes filles, au travail ne peuvent pas être mis à la disposition d'une classe de l'école ordinaire d'une façon aussi complète que dans une école spéciale.

Quant au contact avec la vie, une école de perfectionnement se trouve dans les mêmes conditions qu'une école ordinaire pour assurer la participation des enfants aux différents aspects de la vie culturelle et travailleuse de la société. Les élèves de nos écoles de perfectionnement participent de plein droit et dans la mesure de leurs possibilités à toutes les entreprises des organisations enfantines et juvéniles. Ce sont les compétitions sporti-

re artistique, le tourisme, la protection de la nature, les plantations dans les villes, etc. Dans ces écoles on organise les rencontres avec des hommes de science et de littérature, les héros du travail. Les élèves des classe supérieures font un stage pratique dans les entreprises industrielles, les chantiers de construction, les sovkhozes.

Tous ceci témoigne, il nous semble, d'une façon démonstrative que les écoles de perfectionnement peuvent assurer les meilleures conditions nécessaires pour le caractère réellement correctif du travail d'instruction et d'éducation et pour chaque eleve mentalement arriéré, dans la mesure de ses possibilités, et le préparer à une vie indépendante et au travail dans les société.

On a fait des objections contre les ecoles internats de perfectionnement. On y donne comme raison que l'enfant reste pendant une longue période privé de l'influence quotidienne de sa famille. Il est certain que ces objections ont quelque chose de juste. Mais tout d'abord pas toutes les familles et pas toujours peuvent assurer une bonne éducation d'un enfant anormal. Or, le placement de l'enfant dans un patronage ou sous une tutelle comme cela se pratique dans certains pays a peu de chance de mieux remplacer la famille qu'une école-internant bien dirigée. Ensuite, on peut toujours et on doit trouver des possibilités pour des rencontres plus frequentes entre l'enfant et les parents.

Ainsi, par exemple, chez nous, les élèves des internats passent leurs vacances a la maison. Si l'école-internat se trouve à peu de distance de la maison des parents, on laisse l'enfant passer chez lui le week-end, et si l'enfant a la nostalgie de la mai-

son on le laisse aller chez ses parents plus souvent. En outre, dans les écoles-internats on encourage les parents à visiter leurs enfants à l'école.

L'étude de la vie des enfants dans les internats montre que si on les élève avec soins et comme il faut, ni les enfants ni les parents n'éprouvent de sentiments pénibles ou de sensation de séparation.

Nous, pédagogues-défectologies, croyons que la possibilité que nous avons d'organiser autant d'ecoles de perfectionnement y compris les internats qu'il nous faut pour assurer l'instruction et l'éducation de tous les enfants mentalement arriérés est une grande conquete culturelle et humanitaire de notre société. Bien entendu, l'entretien des écoles de perfectionnement revient beaucoup plus cher que celui des écoles ordinaires ou des classes spéciales près des écoles, mais au point de vue social et pédagogique leur existence est pleinement justifiée.

Le processus d'instruction et d'education des élèves des écoles de perfectionnement est basé sur des principes théoriques. Les uns sont d'ordre pédagogique général, d'autres sont spéciaux.

Comme principes pédagogiques généraux d'instruction et d'éducation on a, comme on le sait, le caractère scientifique et systématique du matériel d'enseignement ainsi que le caractère éducatif de l'instruction. Ces principes sont également à la base de la pédagogie spéciale. Ils trouvent leur expression dans la détermination du volume de l'instruction, dans la systématisation du matériel d'enseignement et dans son importance pour le developpement maximal de la personnalité de l'enfant mentalement arriéré.

Les principes théoriques du processus d'instruction et d'édu

cation des enfants mentalement arriérés son bases sur les particularités spécifiques de leur développement mental.

Partant de l'analyse pathogénétique de différentes formes d'arriération mentale, nous considérons l'oligophrénie comme une forme particulière d'insuffisance mentale déterminée par des facteurs étiologiques variés(hérédité pathologique, aberrations chromosomiques, lésion de l'embryon et du foetus, pathologue de l'accouchement et états résiduels á la suite d'une lésion organique du cerveau pendant la vie intrautérine ou aux toutes premières étapes de la vie de l'enfant- principalement avant l'age d'un an et demi). Les troubles de l'activité nerveuse supérieure, une mobilité insuffisante des processus nerveux des les premiers etapes de son développement rendent plus difficile la formation des systèmes fonctionnels complexes qui représentent la base nécessaire d'une activité analytico-synthétique normale. Ceci provoque un sousdéveloppement des secteurs les plus importants de la mentalité ce qui aboutit á un trouble de cognition et particulièrement de la pensée, modifie d'une facob particulière le développement de la personnalité de l'enfant mentalement arriéré.

En rapport avec les differences de la structure du défaut- suivant sa profondeur et son originalité qualitative- les déviations dans le développemnt mental ne se manifestent pas de la même façon chez chaque enfant. Cependant, ce qui est caractéristique pour les enfants oligophréniques, c'est une insuffisance de la différenciation dans la perception du monde extérieur, des objets et de leurs relations dans l'espace. Ces enfants ont des idées incomplètes et inexactes sur le monde environnant, ils égalisent les images des objects qui se ressemblent, ils ont la difficulté

générale, ils ne savent pas appliquer les connaissances apprises à la solution des autres tâches analogues. Chez ces enfants, on voit se mettre en relief les défauts non seulement du raisonnement verbal et logique mais également pratique et concret . Ils sont gênés par les formes complexes d'analyse et de synthèse, de comparaison et de généralisation, par la compréhension des relations de cause et d'effet. Leur pensée est dépourvue de passages complexes et successifs d'une perception sensorielle à une pensée abstraite, et l'accomplissement des tâches intellectuelles et pratiques est caractérisé par un manque de compréhension du but final et par la faiblesse de la motivation. Dans la sphère affective et volontaire on voit souvent chez les oligophréniques se manifester une perception de soi inadéquate, une inertie, des difficultés de passage d'une forme d'activité à une autre. On sait le rôle du langage dans le développement des processus de reconnaissance et on sait également à quel point son développement est insuffisamment profond chez les enfants oligophréniques. Surmonter toutes ces particularités- telle est la tâche principale du processus d'éducation et de correction dont le but est d'élever le niveau de l'activité de cognition et de former la personnalité de l'enfant mentalement arriéré.

Les recherches montrent que l'activité de cognition des enfants oligophréniques se développe considérablement lorsque le processus d'instruction est basé non seulement sur des moyens verbaux et concrets, mais comprend une action personnelle orientée vers un but déterminé avec les objets d'études, une reproduction imagée du matériel lu, un accomplissement des tâches

en évidence. Un grand rôle dans l'amélioration du processus de reconnaissance est joué par les raisons sociales des tâches imposées.

L'oligophrénie apparaît le plus souvent à la suite des lésions organiques du cerveau, mais étant donné que ces lésions ont un caractère résiduel et ne sont pas progrédientes, un enfant oligophrénique est capable d'un développement que obéit aux lois fondamentales générales tout en ayant ses particularités spécifiques conditionnées par le caractère du trouble.

A la lumière de ces constatations, c'est l'étude théorique des corrélations entre l'instruction et l'éducation qui mérite une attention spéciale. A la base de nos recherches psychologiques, pédagogiques et cliniques nous avons mis la théorie d'un savant de talent, de feu le professeur L.S. Vygotski sur le rôle conducteur de l'instruction dans le développement de l'enfant et sur les deux niveaux de développement qui semblent exister chez chaque enfant- un niveau actuel c'est à dire déjà atteint et une zone de développement qui le suit et qui représente les possibilités potentielles de cet enfant. L'enseignement ne sera productif que s'il s'appuie sur cette zone de développement, c'est à dire s'il devance le développement. Si le processus d'enseignement est bien organisé (fourniture du matériel spécialement organisée, aide à l'enfant au moyen des questions qui l'orientent, des instructions, des démonstrations, etc) on voit se former chez l'enfant de nouvelles connaissances et un nouveau savoir-faire qui, en passant au niveau actuel du développement, préparent la zone suivante de développement qui va la suivre aussitôt. On sait que les possibilités

d'un développement spontané sans enseignement spécial chez un enfant anormal sont très limitées.

Les recherches scientifiques et l'expérience montrent également que le rendement de l'enseignement augmente considérablement et son rythme s'accélère si le processus d'enseignement s'effectue au niveau des difficultés maximales mais ne dépassent cependant pas les possibilités de l'enfant.

Probablement, nulle part le role positif d'instruction systématique ne se met en relief avec autant d'évidence pour le développement de l'enfant et la formation de ses fonctions psychiques supérieures que justement dans le travail avec les élèves mentalement arriérés.

Les fonctions psychiques supérieures- attention volontaire, mémoire logique, langage, pensée ainsi que formations plus tardives -ont une origine sociale: elles se forment à la période postnatale, au cours des contacts et de l'activité sociaux. Sous l'action de l'enseignement elles se développent également chez les enfants mentalement arriérés malgré l'existence chez ces derniers d'une insuffisance biologique primaire. C'est justement pourquoi un cycle de connaissances et d'habitudes assimilé consciemment par les enfants au cours du travail de correction exerce une telle action compensatrice sur le développement de l'activité de cognition de la sphère émotive et volitive et la personnalité de l'enfant mentalement arriéré qu'on ne pourrait jamais obtenir lors d'un entrainement mécanique de sa sphère sensorielle, de sa mémoire et de ses habitudes de conduite. C'est pour cela que nous sommes si fermément persuadés dans la nécessité d'un enseignement obligatoire pour les enfants mentalement arriérés dans des conditions

spécialement orées et dirigées au maximum vers le développement de toutes les possibilités potencielles de chaque enfant. Le travail d'instruction et d'éducation dans les écoles auxiliaires prévoit un cycle déterminé limité par un programme de connaissances générales et exigences adressées à l'éducation intellectuelle, morale, esthétique et physique et à la préparation au travail.

En partant de ces principes, on a adopté dans les écoles de perfectionnement avec 8 années d'études un niveau unique obligatoire du volume d'instruction générale qui correspond a peu près à celui d'une ecole primaire(4 ans d'etudes) ordinaire avec une certaine augmentation du matériel dans quelques disciplines d'ordre général. Toutes nos écoles de perfectionnement travaillent selon un plan d'étude unique et un programme unifié approuvés par le Ministère de l'Instruction Publique.

Le plan d'etudes comprend egalement certaines disciplines générales telles que la langue maternelle, l'arithmétique, un cours élémentaire d'histoire, de constitution, de géographie, de sciences naturelles, la culture physique, le chant, le dessin, les travaux individuels pour la correction de la parole et la gymnastique médicale. Une place considérable dans le plan d'études est tenue par la préparation au travail productif. Les principales formes de ce travail sont: travail de serrurier-tourneur, de menuisier, la couture, la tricotage, la reliure, la peinture et, pour les ecoles a orientation agricole,- le travail au jardin, au potager , la culture des fleurs, l'âpiculture, l'élevage de volaille, l'élevage de bétail et la réparation des machines agricoles.

Chez nous, les ecoles auxiliaires sont pourvues de manuels d'études spécialement étudiés pour les élèves de toutes les clas-

ses et pour toutes les matieres du plan d'etudes ainsi que de manuels méthodologiques pour le personnel enseignant.

La manière individuelle d'aborder les élèves au cours des études permet de ne pas retenir à un niveau moyen les enfants qui font preuve des succés relatifs dans une matiere enseignée. En outre, dans nos ecoles speciales on organise en dehors des classes le travail dans les cercles qui favorise le développement des penchants individuels des enfants.

Le choix des méthodes adéquates de correction du développement anormal des enfants mentalement arriérés depend dans une mesure considérable d'un bon recrutement dans les écoles de perfection-Nonenécoles de perfectionnement ont attendu seulement par enfants oligophréniques.

Le séjour dans ces écoles des enfants qui ont des ressemblances extérieures avec les oligophréniques mais qui ne sont pas réellement des debiles mentaux, par exemple, des enfants demisourds avec une faible surdite apparue de bonne heure, avec des arrets de développement mental temporaires et reversibles, avec un infantilisme paycho-physique, des états esthéniques, trop négligés par les pédagogues, avec des troubles locaux de la parole,des troubles visuels, des troubles moteurs et avec beaucoup d'autres manifestations de "pseudo-oligophrenie", n'est pas profitable à ces enfants, retarde leur développement et détourne l'attention des pédagogues des taches de correction des enfants réellement mentalement arriérés. Un rétrécissement de la notion d'oligophrénie, une délimitation de cette notion des etats pseudo-oligophréniques et la création d'un réseau différencié d'ecoles speciales pour les enfants avec les differentes anomalies(avec troubles de la parole, de l'ouïe, de la vue, des mouvements, avec un affaiblissement neuro-somatique, etc.) favorise un recrutement plus adéquate

ter école le perfectionnement. Tout ceci ainsi que l'ensemble des mesures pour l'amélioration de l'hygiène du travail et de la vie des travailleurs, la protection de l'enfance et de la maternité, la gratuité des soins médicaux, a fait que, depuis que la totalité des enfants mentalement arriérés d'âge scolaire reçoivent l'instruction, la proportion de ces enfants par rapport à toute la population scolaire générale des mêmes âges ne varie qu'entre 0,6-0,8%.

Tenant compte d'une complexité extrême de diagnostic différentiel et du dépistage de la vraie structure du défaut de développement mental, nous suivons pour la sélection des enfants des voies multiples. On pratique un examen clinique complet par les médecins de différentes spécialités ainsi qu'un examen psycho-physiologique, logopédique et psychologo-pédagogique approfondi.

La plupart des enfants mentalement arriérés surtout ceux qui ne sont que légèrement débiles ou qui n'ont pas toujours révélé à l'âge préscolaire sont admis à l'école ordinaire. Et c'est si seulement un enfant s'y montre peu apte qu'on le dirige sur la commission médico-pédagogique pour la sélection des enfants dans les écoles de perfectionnement. Dans les cas douteux, l'enfant est placé dans le groupe diagnostic près l'école de perfectionnement où il est étudié en détail pendant 8-10 jours. Dans plusieurs cas les élèves inaptes d'une école ordinaire fréquentent les groupes diagnostiques près de consultations médico-pédagogique. On étudie l'enfant aussi à l'école de perfectionnement elle-même. Si on trouve qu'il n'a pas de vraie arriération mentale on le fait revenir à l'école ordinaire ou bien on le place dans une école spéciale correspondante. Quelquefois, en cas de besoin, avant de le faire revenir dans une école ordinaire on le dirige sur une école de

plein air ou dans un sanatorium pour enfants nerveux.

On vérifie objectivement la justesse du système d'instruction et d'éducation en voyant la façon et la stabilité d'adaptation des diplomés des écoles de perfectionnement a la vie sociale et au travail. Les résultats des études catamnestiques des diplomés des écoles de perfectionnement montrent que l'immense majorité de ces élèves s'adaptent bien aux genres de travail où ils se placent en rapport avec la préparation professionnelle. Ils n'en font exception que les diplomés chez lesquels l'oligophrénie est compliquée par des troubles émotifs et volitifs. Très souvent ils se montrent peu sociables, changent plus souvent de lieu de travail. Ces données posent à l'ordre du jour le problème de trouver des procédés plus fins de correction des troubles émotive-volitifs.

Il est universellement connu que plus on commence de bonne heure une action éducative spécialement organisée sur un enfant anormal plus on peut obtenir de succés dans le développement de sa personalité. C'est pourquoi pour nous à l'heure actuelle c'est le problème d'une large extension du réseau des institutions préscolaires pour les enfants mentalement arriérés qui est particuliérement important.

Finalement c'est le pedagogue qui tient entre ses mains le sort de l'enfant et dont dépend le succés du système d'instruction et d'éducation. Le caractère compliqué du défaut dans l'oligophrénie demande au pédagogue, en plus de ses bonnes relations avec l'enfant, une haute compétence pédagogique spéciale ainsi qu'une large compétence psychologique, logopedique et, dans un aspect spécial, clinique. C'est pourquoi chez nous, dès les premières années de la création de l'Etat soviétique on a organisé la préparation des pro-

fesseurs pour les écoles spéciales ayant obligatoirement une instruction supérieure. Tenant compte des conditions difficiles de travail des professeurs-défectologues on leur a accordé un salaire de 25% plus élevé que celui des professeurs des écoles ordinaires. Et les bourses d'études des étudiants défectologues sont de 50% plus élevées que celles des étudiants d'autre facultés des instituts de pédagogie.

Enfin, une dernière question. Le système d'instruction et d'éducation des enfants mentalement arriérés fonctionne non pas seulement empiriquement, par la voie de sélection des meilleures expériences mais également sous l'influence de la science qui étudie ces enfants et de plusieurs sciences connexes (Psychologie, médecine, génétique médicale, biochimie et d'autres).

Dans notre pays on a crée pour l'étude scientifique des problèmes d'instruction et d'éducation des enfants avec différentes anomalies un Institut scientifique de défectologie qui fait partie du système de l'Académie des sciences pédagogiques de l'URSS.

Des recherches complexes de toutes les formes d'anomalies créentdes conditions favorable pour une étude comparés des enfants. Et ceci aide à perfectionner aussi bien les problèmes de diagnostic que le système d'instruction et d'éducation différenciées de tous les enfants déficients y compris ceux avec l'arriération mentale.

Par nos recherches et en recueillant tout ce qu'il y a de mieux dans la pratique internationale nous voulons trouver les conditions optimales pour l'instruction et l'éducation des enfants mentalement arriérés, car, comme la disait I.P.Pavlov, "rien ne reste immobile et imprenable, et tout peut etre atteint, changer pour le mieux si seulement on crée les conditions correspondantes".

# MAIN TRENDS IN STUDYING THE PROBLEM OF OLIGOPHRENIA

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Over the last two decades, the Institute of Defectology (the U.S.S.R. Academy of Pedagogical Sciences) has been studying the problem of oligophrenia in clinico-physiological and psychologico-pedagogical directions. This problem is being investigated comprehensively and dynamically, which has made possible a more clear-cut definition of the very notion of oligophrenia.

Relegated to oligophrenia are only those forms of congenital or early-acquired feeblemindedness which is based on this or that biological insufficiency (heredity, chromosome pathology, exogenic harms).

Oligophrenia is a special type of abnormal development, a non-processal state, the specific clinical feature of which is the deficiency of cognition, predominantly thinking, as seen against the background of the underdevelopment of the entire personality. Such a narrowing of the notion of oligophrenia has proved most productive in studying the etiology, clinical picture and structure of the defect.

In studying the etiology of oligophrenia, much attention is devoted to chromosome pathology and genetic factors along with various exogenic harms.

An analysis of the structure of the defect in cases of oligophrenia and a comparison between real feeblemindedness and pseudo-oligophrenic states warrant the conclusion that the underdevelopment of the cerebral cortex is to be regarded as the basic pathogenic factor of oligophrenic feeblemindedness. It is this pathogenic factor that leads to the pathological inertia of nerve processes. Pathological inertia, in its turn, impedes the formation of complex functional systems, which underlies the underdevelopment of entire cognition, thinking in particular.

Electroencephalographic investigations of oligophrenic children have shown that in most of them there are diffused cha-

ges in the nature of background rhythmics and mental assimilation reaction, which may indicate to the diffused pathology of the cortex. In 40 per cent of the cases, these changes were more pronounced and reflected the pathology of the cortex and subcortical structures.

The comprehensive study of the structure of the defect has enabled us to put forward the pathogenic principle of classifying oligophrenia.

In individual variants of the defect, the clinical picture is determined by the specific features of the pathogenisis, i.e., by the etiology of the disease, the nature of the morbid process, its spread and the time the lesion arose.

Basing ourselves on the peculiarities of the pathogenesis, we have singled out five forms of oligophrenia.

The first form is clinically characterised by underdeveloped cognition, with the relative primary intactness of the emotional-volitive sphere, and the absence of lesions within the limits of this or that analyserl Pathogenically, this form is characterised by the diffused underdevelopment of the cerebral cortex with the relative intactness of subcortical formations and the absence of changes in the liquor circulation. This form of oligophrenia may result from genetic factors or arise exogenically.

In the second form, alongside underdeveloped cognition the clinical picture is characterised by reduced capacity for work and a change in behaviour. Pathogenically, the underdevelopment of the cerebral cortex is combined with resudual hydrocephalus. Etiologically, this form is due to exogenic factors.

The third form is clinically characterised by a complex structure of the defect, when underdeveloped cognition is combined with disorders of speech, space syntheses or the motor sphere. Pathogenically, the underdevelopment of the cerebral cortex is associated with localised lesions within this or that analyser.

Etiologically, these are exogenic forms. We should also include here a peculiar form of oligophrenia, in which underdeve-

loped cognition is attended by disorders of the personality.This form is characterised by crude changes in the front divisions of the cortex.

The fourth form of oligophrenia is clinically characterised by a combination of underdeveloped cognition with psychopathylike disorders of behaviour. Pathogenically, in addition to the underdevelopment of the cortex this form is accompanied by the pathological changes in subcortical formations, which is confirmed by the data of electroencephalography. Etiologically, this form of oligophrenia is often characterised by a combination of genetic and exogenic factors.

The fifth form is typified by underdeveloped cognition in conjunction with peculiar changes in psychic tone.

These forms arise in cases of sexual chromosome aberrations.

The above classification makes it possible to work out more differentiated corrective-educational and medical measures in application to each variant of the defect in oligophrenia.

As for the work of auxiliary schools, special attention is devoted to proper selection of oligophrenic patients for these schools. This made it imperative to study the question of distinguishing between oligophrenia and similar states.

With this aim in view, pseudo-oligophrenic states were studied and differential-diagnostic criteria elaborated.

Clinicophysiological and psychologico-pedagogic researches carried out at the Institute of Defectology have provided the basis for elaborating the principles of selecting oligophrenic children for auxiliary schools, for working out programmes for general and labour education and also for scientific substantiation of the individual approach in specialised establishments.

A study of the catamnesis of oligophrenic children, who have finished auxiliary schools, shows that the overwhelming majority of these mentally deficient juveniles are prepared to live and work in society.

Thus, the results obtained, as it seems to us, attest to the fruitfulness of the comprehensive approach to the study of this complicated problem.

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# DEBATABLE PROBLEMS IN CLINICAL ASPECTS OF OLIGOPHRENIA

To this day the problem of oligophrenia remains vague and debatable. Thus, unjustifiably referred to the oligophrenia group are the progredient forms of congenital dementia, secondary disturbances in intellectual development due to local affections of the central nervous system (speech, hearing, motor activity, space perception, etc.), temporary reversible retardations of various genesis (psychophysical infantilism, asthenic condition, etc.) and also mental underdevelopment caused by poor upbringing and pedagogical neglect. Such a broad conception is unjustified, hampers the investigation of the very essence of oligophrenia and drawing the line between oligophrenia and similar conditions and also the elaboration of special methods of treatment and correction. On the basis of pathogenetic analysis of various forms of mental insufficiency, oligophrenia must be distinguished as a special form of intellectual defect characterized by underdevelopment of the entire cognitive activity and especially of thinking. It is due to pathological heredity, chromosomic aberration, injury to the fetus, birth pathology, either organic affection of the central nervous system during the intrauterine period or at a very early stage in postnatal development. Hence, the need to sharply narrow down the conception of oligophrenia.

One of the most complex and debatable problems is the etiology of oligophrenia. During the past eight years a number of clinical forms of oligophrenia with pathogenesis connected with chromosome aberrations have been described. However, the causes of the appearance of the chromosomic aberrations are still disputable. A number of experiments clearly show that the chromosomes fail to divide under the influence of adverse external factors upon the ovicell or the sperm. Radiation causes intense appearance of most diverse hereditary abnormalities. Three hundred and ten children born to people who were victims of irra-

duation in the atomic bombing of Hiroshima and Nagasaki are evidence of the great number of deformities and early mortality this causes (Belefante, 1961). The number of children with hereditary deformities is much greater in geographical areas with natural high radiactive background (Donentri,et al., 1959).The frequency of hereditary deformities among children changes in different geomagnetic latitudes with changes in the cosmic radiation flux (Weeley, 1966).

A number of studies (Macht. Lawrence, 1955; Kaplan,1957;Legen et al., 1965) have shown that radiation may cause most grave genetic effects.

Penrose has pointed out that only in 25% of the total number of patients with Down's disease there is a certain degree of family heredity. in 75 per cent of the cases there are other causes among which the mother's age is the most prominent.Known forms of oligophrenia include those with a similarity to Down's disease with normal karyotype which makes it reasonable to suspect phenocopy. These phenocopies could be due to injury of the fetus at an early stage. The similarity is due to time of the injury and of the effect on one and the same morphogenetic system. The purely genetic forms of dementia are hereditary forms of the disease, dominant, and mixed dominant abnormalities and recessive diseases. These are diseases which frequently have a lethal outcome and for this reason they should not be classed with the oligophrenic group.

Many authors regard slight forms of dementia as purely genetic merely because the psychometric indicators are 2 sigmas below the average of the Haussian curve, i.e., children with an IQ below 70 are classed as oligophrenic. Admitting the possibility of the effect of certain genetic factors on the structure of the intellect, we should not nevertheless confuse children who are actually normal with oligophrenic children. There are qualitative differences between the norm and pathology. Considering all the above etiological factors we must admit, nevertheless, that at the present stage the leading role in the etiology of oligophrenia belongs to exogenous harmful factors.

Oligophrenia is a residual non-progredient condition.For

this reason the development of oligophrenic children is subject to the basic laws of the mental development of the child but at the same time has peculiarities that depend on the nature of the affliction of the central nervous system.

The debatable point in the clinical aspect of oligophrenia is it that determines the specific clinical picture. At present more and more emphasis is being placed on the time of the injury.

However, the time factor is not the only criterion determining the peculiarity of the clinical picture. A no less important factor determining the structure of the defect in oligophrenia is the localization of the injury. This point has been confirmed also in the study of those forms of oligophrenia that are due to chromosomic aberrations. Thus, aberrations in the large chromosomes cause the death of the fetus, while aberrations in autosomes load to profound mental defects. Sex chromosome aberrations cause polymorphic psychopathological symptoms and only in a very small percent of the cases they cause clearly expressed dementia.

A primary feature of oligophrenia is underdevelopment mainly of the surface cortical layers. This loads to insufficiency of all higher nervous activity and in particular to disturbances in the flexibility of nervous processes. Inertness which appears at the earliest stages in the development of the child impedes the formation of complex functional systems which are a specific form of the activity of the hemispheres of the brain. This is the very basis of underdevelopment of the cognitive activity, and particularly of the intellect and the personality as a whole.

Thus, on the basis of the time and localization of the affection it is possible to identify the main pathogenetic essence of oligophrenia. The combination of this main pathogenetic factor with a number of additional factors determines the qualitative peculiarity of the structure of the defect, and this provides the basis for identifying five forms of oligophrenia.

Hence, instead of attempting to classify oligophrenia according to etiological, anatomical or neurodynamic symptons or

purely externally, by description, we propose to classify oligophrenia by the patjogenetic principle. Various methods of studying oligophrenia are known. In a number of countries the psychometric method is used to determine oligophrenia. Since oligophrenia is a clinical form with specific peculiarities it must be studied by the clinical method. In clinical investigation of oligophrenia, great emphasis is made on the experimental psychological and pedagogical methods with qualitative analysis of the data obtained. This should be combined with a study of genealogical, biochemical, electroencephalographical, cytogenetic and other data.

The clinical method of investigation alone can reveal the structure of the defect, explain its mechanisms, and establish the internal relationship between the etiopathogenesis and the peculiarities of the clinical picture. In this way the dividing between oligophrenia and similar conditions can be drawn and scientific conclusions as regards therapy and correction arrived at.

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# PSYCHOLOGICAL AND PEDAGOGICAL STUDY OF THE MENTALLY RETARDED CHILD AS A BASIS OF CORRECTION OF HIS DEVELOPMENT DEFICIENCIES

The general educational and manual training process may be effectively employed to correct the deficiencies in the development of the mentally retarded child only when it is planned with due consideration for the peculiarities in his cognitive and personality traits. This requires taking account of the typological peculiarites of the different categories of mentally retarded children and the individual peculiarities of each child.

In order to plan such a process of instruction the teacher must make a thorough study of the peculiarities in the development of the mentally retarded child during the process of education and character-building directly.

The content and methods adopted by the teacher to study the child are psychological-pedagogical.

Psychologica-pedagogical study of the retarded child must organically combine functional analysis and integrated study of the development of the child's personality. What is meant by functional analysis is the study of the conditions and the changes that take place in the activity of various mental functions (perception, memory, attention, thought and speech, various habits, etc.) in the course of education. How the child masters the voluntary forms of the above functions must be studied with particular care.

Integrated study of the personality is taken to mean the study of the formation of the child's attitude towards the principal types of activity(play, study, work); his attitude towards the children's community and towards a broader social environment; the child's attitude towards his own successes and failures in various forms of activity. Special attention is de-

voted to a qualitative characteristic of the emotional-affective behaviour of the child in the various types of activity.

The basic method of psychological-pedagogical study of the retarded pupil is systematic observation of his activity in typical situations such as the study process (at lessons), at play and at work. The data obtained must be periodically classified, analysed and discussed by groups of teachers, psychologists, speech therapists and psychoneurologists for the purpose of determining the state of the development of the child and deciding on the techniques to be used in teaching him.

For the purpose of more definitive and deep analysis of the data obtained by observations made in typical study situations, in certain cases it is advisable to arrange special experiments with each pupil individually. Particularly valuable data may be obtained with the help of individual experiments the object of which is characterize qualitatively the level of development of individual functions (perception, attention, memory, thinking and speech). For this purpose, methods may be used that have been generally accepted in experimental child psychology to verify the condition of memory, attention, classification of objects, their generalization, etc. It is essential to bear in mind that the emphasis should be on the quantitative of the analysis of the process of fulfiling task rather than on the qualitative characteristics. Thus, not only the correct solution of the task, but also the mistakes the child makes that may be referred to as <u>good mistakes</u> and which be easily overcomes with a little help are highly significant indications of the peculiarities in the development of his thinking. In this connection we should emphasize the importance of studying the child's "next zone of development" (L.S.Vygotsky), which lies within the limits of the child's ability to perform the task with the teacher's (experimenter's) help. The delineation of the "next zone of development" is also important for determining the educational and character-building techniques for a certain period of time, and for a more definitive differential diagnosis of the child's condition and determining the dynamics of his development.

In the study of integral manifestations of the child's

personality, first of all it is necessary to pay attention to the changes that take place in his attitude towards concrete types of activity due to the influence of training and education. At the same time, the changes in the relationship of emotional-affective and intellectual components in the manifestations of the child's personality must be a special subject of study. Thus, for practical purposes it is necessary to observe closely how a negative attitude towards study changes to a positive attitude in pupils who for a long time failed in their studies in ordinary public schools. It is also important to study the change from an emotional-affective overestimation of their work capabilities to a more adequate estimation, based on a gradually forming analytical appraisal of concrete work tasks by the pupil, or one or another occupation or speciality as a whole.

A study of the peculiarities in the relationship of the child's emotional-affective and intellectual spheres is also significant as a basis for concrete methodological techniques for the formation of the moral personality qualities which require ascertaining in each concrete case the effectiveness of the methods of training and explanation, encouragement and compulsion, etc.).

Lastly, the psychological-pedagogical study of auxiliary school pupils must be continued for at least one or two years after their graduation. Data on the post-school activity of mentally retarded adolescents are necessary for obtaining clearer picture of the conditions in which the social adjustment of former pupils of auxiliary schools is most effective. In this connection, the data of greatest significance will be that on the degree of their independence and labour productivity, why they change their place of employment, and their own explanation of their successes or failures in independent life, etc. Certain data in the catamnesis attest significant progress in the development of the personality of former pupils of auxiliary schools due to the influence of new conditions of life, work and social environment.

The psychological-pedagogical study of mentally retarded

pupils will be more comprehensive and thorough if combined with prolonged clinical-medical observations.

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# THE MAJOR DEVELOPMENT IN MENTALLY RETARDED CHILDREN STUDYING AT SCHOOL

Soviet psychologists for many years have been studying the specific features in the development of oligophrenic children attending auxiliary schools. The various aspects of their cognitive activities and manifestations of the emotional-volitional sphere are investigated by means of longitudinal observation, experimental-psychological methods and study of production of children's activity. The choice of technic depends on the problem being studied. In analysing the data use is made of comparison cross-sections of the development of oligophrenic children taught in different grades, the development of the same children's community is traced for one or several years.

Since the 1930's Soviet psychology has been elaborating the fundamental thesis advanced by Professor L.S. Vygotsky, that although the development of abnormal children is highly specific it follows the same basic laws as the development of normal children. Applied to debile children (although they differ in various aspects of their mentality) this means that due to the plasticity of the cortex they possess considerable potentialities for developing complex forms of mental activity: logical memory, voluntary attention, verbal thinking with its inherent operations which are determining factors in the development of children. It is possible to realise the development potentialities of debile children by means of timely properly directed corrective instruction. Psychological studies and experiments conducted for many years at auxiliary schools in the Soviet Union have demonstrated that teaching which draws on the potentialities of oligophrenic children significantly advances their mental and moral development, while instruction adapted to the level of the defect does not promote thier development.

With a view to develop complex types of mental activity

of pupils, auxiliary schools employ a great variety of teaching aids and methods.

The teacher organizes his teaching activity on the basis of the practical, manual and imitative activity of the children, and employs visual and verbal explanation methods.

At present a great deal of information has been accumulated which characterizes the specific of the cognitive activity and the affective-volitional sphere of this category of children. Corrective work is planned on the basis of this information.

When children are enrolled in the 1st grade of the auxiliary school, the teachers help them to master those things in which they are retarded compared to pupils of public schools, but which is possible to develop according to available data. While correcting perception defects the children are taught to examine, analyse and generalise the animated and inanimated objects around them, to distinguish their position in space and make observations of seasonal phenomena. While developing their speech in the course of practical and training activity they are taught to carry out tasks on verbal instructions, describe their actions and tell what they see. The rudiments of verbal memory are developed, reading, writing and arithmetic habits are formed and elementary community behavioural habits are instilled.

At this stage the efforts of the teacher and children are considerable. The children acquire much new information but the effect of instruction on the development of the child cannot be seen at once; it becomes evident later in the second half of the lower school age. Experimental studies have shown that considerable changes in the behaviour of children and their mental development take place during the third and fourth year of schooling: the latent response time to simple visual stimuli noticeably decreases, the selection response becomes less generalized, The pace of practical activity, and learning increases, The children become more organized and their attention wanders less. Perception of their environment and of the objects comprised by it becomes more complete and specified. In the objects they perceive and compare they can distinguish more fea-

tures, and recognize them more correctly as their images of objects becomes more specific and their power of observation noticeably develops. Generalizations(classifications) of objects, those originally were extremely broad and amorphous, becomes narrower and differentiated since as a result of training children acquire the ability to group objects by definite features, which gradually supplants situational and extremely broad generalizations. Intelligent memory begins to appear, there is slight development is conversational speech and, to a much lesser degree, in narrative speech. The children acquire habits of writing and elementary arithmetic; many leave behind the sylable stage of reading. Perception of space and ideas of space develop very little.

The slow development of the debile child during his first years at the auxiliary school seems to be due to the fact that his readiness to education, as a complex new type of activity but one that is within his powers, whose effect is initially slow and weak but later becomes progressively stronger.

A distinguishing feature of the second stage of development of debiles is that to adolescents in the fifth and sixth classes of auxiliary schools, school studies become their main and customary activity and the subject of their emotions.Hence, the influence of education on development increases noticeably. Investigations made by Soviet authors show that in the medium school age their memory develops more intensively that formerly, and their narrative speech improves. The development of their space perception at this period is difficult and very slow. Despite the deficiency in memory and reproduction, the scope of knowledge acquired by adolescent debiles becomes broader and their study and cognitive interests begin to form. However, the process of assimilation of knowledge,its specification and generalization and also the ability to apply it in new conditions lags behind its accumulation. To a certain degree this is explained by verbalism, the disparity between verbal knowledge and the ability to visualite the objects or situations described. This is clearly revealed in their comprehension of the terms of arithmetic problems, and their inability to apply units of measure. Practical and work activity

at this stage becomes purposeful and more productive, and the pupil becomes more exacting with regard to its quality. Self-appraisal and appraisal of his comrades becomes more correct, At this stage the object of corrective work is to close the gap between the word and the visual components of thought and to make use of the word for developing of concrete thinking.

Great advances in the level and speed of development, and formation of the personality of the debile is observed in the senior school age(7th and 8th grades).

During the last years of study at the auxiliary school manual work is a highly significant component of their study activity and the pupils make good progress in it. The favourable emotional colouration aroused by their success in work and the prospect of independent work after leaving school in the near future have a good influence on furthering their interest in work, attention, will and self-reliance. During fulfilment of work tasks they become critical and gradually it becomes possible to instill habits of self-control. Progress at school is better and their intellectual activity increases,This can be seen in the use made of the knowledge acquired during fulfilment of new study and work tasks. To a certain degree fulfilment of new study and work tasks. To a certain degree inertness is overcome and flexibility of mental activity develops. In the senior school age personal traits of character, interest in work and social activities are formed. Behaviour as governed by motives of social significance and ensures drawing into a working carreer.

The stages in the development of debile children are closely connected with the part played in their life by the principal components of specially organized education and character-building. The possibility of smoothing down the defects is based on the psychological substantiation of corrective teaching aimed at realizing the potentialities of this category of abnormal children.

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# PECULIARITIES OF THE ELECTRICAL ACTIVITY OF THE BRAIN IN OLIGOPHRENIA AND SIMILAR STATES

The functional state of the cortical and subcortical structures of the brain, and also the character and localisation of pathological processes forming the basis of a particular clinical syndrome can be determined by means of the EEG-technic employed in the complex clinical investigation of children with various forms of abnormal development.

Study of the electrical activity of the brain of 120 mentally retarded children and asolescents between 9 and 16 years of age revealed that 8% of the children had normal EEG; In 51% of cases deviations from the normal EEG were moderate and expressed in the changes of the background rhythm and the driving response; in 41% the deviation in the EEG was sharply expressed and indicated pathology of the cortical and subcortical structures of the brain. On investigation of the electrical activity of the brain 107 of children (aged 7 to 12) with various forms of "pseudo-oligophrenia" (retarded development, profound asthenic syndrome), a normal EEG was registered in 9%, deviations from the norm were moderate in 25%, and in 24% there were gross deviations from the norm.

The disturbances in the electrical activity of the cortex were expressed in the absence of alpha-rhythm and the presence of the diffusves slow waves on the EEG (Fig.1). This type of EEG-pattern is observed most frequently in oligophre-

nic children, whereas wide spread cortical pathology was observed in only 9% of the children with pseudo-oligophrenic states. The type of EEG disturbance met most frequently in children of this group was dysrhythmia (16%)(Fig.2), usually registered in the occipital region of the cortex and was expressed in irregularity of the alpha-rhythm, and a large number of slow and sharp waves. Dysfunction of the subcortical structure of the brain appeared on the EEG in the form of a bilateral groups of teta- and delta-waves registered in the central and parietal regions of both hemispheres, and also in the shape of paroxysmal generalized brusts of delta-waves embracing all regions of the cortex. EEG with indications of dysfunction of the meso-diencephalic structures were registered in the following groups: retarded children with behaviour disorders, mentally retarded with cerebral-endocrine insufficiency, asthenic syndrome due to craniocerebral trauma, and also in certain forms of mental insufficiency associated anomalies in the system of sex chromosomes (Kleinfelter and Shereshevsky-Turner syndromes). Study of the EEG of 16 patients (aged 15 to 27) with the Kleinfelter syndrome revealed that the EEG for 15 of them was patholofical; 7 of the patients had an average alpha rhythm frequency of 8 to 8-5 oscillations per second, which is below the norm. The bilateral brusts of the teta and delta waves in the central and parietal regions of the cortex were periodically registered in 13 patients.

The character of these brusts their distribution over the cortex makes it possible to suspect the connection between this activity and the non-specific thalamic system, which, as

is known, exerted an inhibitory effect on the cortex. It may be thought that the lower psychical activity peculiar to most patients with the Kleinfelter syndrome, their sluggishness, passiveness and sleepiness are due to the same neurodynamic changes at the level of diencephalic structures which form the basis of the EEG changes described. It is possible that the dysfunction of the diencephalic structures in the Kleinfelter syndrome is connected with hormonal insufficiency due to gonadal dysgenesis.

Dysfunction of the meso-diencephalic structure of the brain which possible is also connected with disturbances of the hormonal equilibrium, was revealed on the EEG of patients with the Shereshevsky-Turner syndrome, another form of congenital abnormality due to chromosomic aberration. Investigation of 16 patients (aged 6 to 22) with the Shereshevsky-Turner syndrome revealed an increase in the average frequency of the alpha rhythm to 12-14 oscillations per second and polyrhythmia in 8 patients. In half of cases the EEG showed a predominance of high-frequency low-voltage activity registered in all regions of the cortex.

Investigation of 13 patients of this group for bioelectrical reaction to simple light and sound stimuli showed that non-specific evoked potential in the form of a high-amplitude negative- positive complex is registered in the central and parietal regions of the cortex.

In contrast to the observations made in normal subjects, non- specific evoked potential in the Shereshevsky-Turner syndrome is highly stable and may not show any signs of habituation even during the repetition of stimulation for

80 to a 100 times. It may be assumed that this fact, as well as the presence of low,amplitude high-frequency activity on the EEG in the Shereshevsky-Turner syndrome, reflects the intensification of the activating influence on the cortex from the part of of the midbrain reticular formation.

The deviations observed in the EEG in Kleinfelter and Shereshevsky-Turner syndromes reflect the dysfunction of non-specific systems at the meso-diencephalic level. The various forms in which this dysfunction appears on the EEG-predominance of inhibitory influence on the cortex in the Kleinfelter syndrome and the rise of activating influence in the Shereshevsky-Turner syndrome- may express the different character and degree of participation of the non-specific structures in the pathological process.

On the whole, the material presented shows, that although the EEG is not specific nosologically, the data obtained by electrophysiological examination may give an idea of the localization and degree of the brain damage; analysis of the background rhythm combined with investigation of secondary responses to afferent stimuli makes it possible to suggest the predominant involvement of different subcortical structures in various forms of abnormalities.

EEG data employed in clinical investigation may be useful in analysing the structure of the mental deficiency of different etiology.

# THE DIFFERENTIAL DIAGNOSTICS OF MALDEVELOPMENT IN HARD OF HEARING CHILDREN FROM OLIGOPHRENIA

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Our investigation of the contigent of schools for mentally retarded children has shown that about 10 per cent of them just suffer from a hearing loss, their central nervous system organicly proved to be throughly preserved. Since the development of the hard of hearing child is no doubt hindered by the upbringing in a school for mentally retarded it is highly important to differenciate maldevelopment in the auditory handicapped from mental retardation of an organic background.

A group of such children underwent a thorough clinical investigation in which medical study (anamnestic, audiological, neurological, somatological, encefalographic, CNS-physiological) was combined with a profound study of auditory perception, intelligence, speech, assimilation of didactic material and generally behavior. The medical data disproved any involvement of the cortex.

But some features of the children in question may apparently be similar to those in oligophrenia. They cannot answer most elementary questions; they pronunciation is infantile. They do not understand (or understand very poorly) written text, they do not manage the sound and letter analysis which is indispensable in writting. Though they acquire numbers they cannot solve arithmetic problems. All that contributes to an impression of a severe mental retardation which brings the children to a school for mentally retarded, sometimes even to an imbecile class, where they still lag behind other children.

The investigation of auditory perception in those children has shown that their hearing loss is most often light but still interfereing with the perception of unloud speech.Some of them cannot follow wispering, the voiced speech being perceived. (Hearing loss of 20 and 15 decibel respectively). As to phoneme recognition, we found snags concerning many consonants.

Such slight loss of hearing most often remains unnoticed by the environment and may be detected when audiometric technique is applied.

Though oral communication is possible provided the speach material is properly arranged a special investigation reveals some more or less severe speech underdevelopment which have appeared as a result of auditory insufficiency. Their pronunciation is found to be distorted, confusion of voiced and unvoiced, soft and hard, stable and explosive cinsonants. Sometimes several unstressed syllables are omitted, initial ones and endings being most affected. Their vocabulary is limited which results in unproper word substitution (for instance: write instead of pencil, soup instead of plate, etc.). It lacks adverbs, prepositions, conjunctions. They do not know how to designate most of special, and especially, temporal concepts. Words of their operative vocabulary do not exist for them in their full phonematic structure, which is revealed when the child tries to write one of words he knows.

Since the phonematic image of words is inexact, and the number of words and grammatical forms stored is limited they quite often fail to understand both written and oral messages. It is plain to see how seriously it affects progress in different subjects taught at school.

Special intelligence study revealed that non-verbal thinking is preserved. To investigate this phenomenen we offered children several visual tasks: they were instructed to reconstruct pictures, previously cut to peases; to arrange objects according to some idea; to classify or to differenciate objects. In all these tasks children performed successfully.

All children in question behaved adequally in every situation, their self-estimation was critical, they were highly sensitive to their successes and failures. When their activities were well organized their ability to work proved to be normal. They were capable to endure a long intellectual tension and to overcome difficulties by themselves. Their progress in studies was a strong testimony for the intellectual preservance.

All hard of hearing children under study manifested a high acquisition rate when a proper teaching technique was in-

troduced. It concerned not only performing of concrete tasks but also linguage instruction, especially acquisition of grammatical forms; solving of arithmetic problems if a comprehensible introduction of the problem conditions was provided.Children were keen and quick at acquiring new material and ready to apply it in their independent activities which convinced us that they have no specificly oligophrenic affections of the central nervous system.

To conclude we would like to emphasize once more that fal-ltive diagnoses are usually accounted for by an underestimation of the role of auditory preservance in speech and general development of the child. Our experience proves that under special instruction such children are able to acquire successfully the school teaching material.

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# ROLE OF ACTIONS IN COGNITION OF OBJECTS BY MENTALLY BACKWARD CHILDREN

Literature on defectology covers extensively the problem of how mentally retarded schoolchildren analyse objects in the process of visual perception. The peculiarities of this process and the basic direction of its development have been established.

The task of this study was to establish the significance of practical actions by mentally retarded schoolchildren for recognition of the parts and properties of objects.

The children tested were lower-grade pupils of auxiliary schools. Each 2nd grade pupil, taking part in the first set of experiments was asked first to give an oral description of the object before him, which was a mushroom-like saltceller.

In the next stage the pupils, following instructions given by an adult, made a practical analysis of the object. They performed eight simple actions, each of which was to help the pupil discover one of the properties of the object. Thus, for instance, the child was told to shake the mushroom. On hearing a resulting sound he could conclude that the mushroom was not empty and that something had been poured into it.

At the conclusion of the experiment the child was again given the task of describing the peculiarities of the object being examined. By comparing the descriptions given by the pupils before and after the practical analysis of the object, conclusions could be made about the effect of the actions performed on the solution mental problem.

The original analysis of the object made by the children was at the low level characteristic of pupils of the primary classes of auxiliary schools.

On repeated analysis the total number of comments increased but slightly. (The average per pupil was less than one new

comment). There was a significant increase in the number of comments that referred to the object as a whole, i.e., second-graders began to give generalized opinions of the object as a whole.

It is significant that independent practical actions of the pupils did not influence the subsequent analysis of the object made by half the pupils tested. Judging by their comments, whatever they did with the object, did not help them to discover anything new in it. Although part of the children gave some additional information it contained nothing due to the practical analysis.

Another large group of children tested relied but slightly on what they knew from their practical experience. The repeat analysis of the object was more complete due to inclusion of one of the properties discovered by means of the actions.

Only a few of the pupils who took part in the 1st set of experiments found it easier to give a fuller and deeper description of the object after practical analysis.

In the course of this assignment the subjects were to determine independently the relationship between the practical action and the mental assignment. They were expected to realize that what they were doing with the object was the practical solution of this problem, i.e., make a generalization. Without such a generalization children solved the mental problem without invoking their practical experience, without making use of it.

The only difference between sets of experiments I and II was that in the latter, after each action the subject had to answer two questions: the first drew the child's attention to the results of the action; the second helped him establish that during the action he had learned something new about the object. In replying to the questions the children had to generalize their practical experience, relate the result obtained to the object being analysed and express the peculiarities they had discovered in the object.

Both questions prompted cognitive activity; they guided and helped the retarded children give outward verbal expression to the rather complex mental activity that could not accomplish independently and internally.

After the action the descriptions of the object given by children in Set II experiments differed greatly from those given at the beginning of the experiment. The total number of comments increased threefold.

The analysis also became more specific.

All the pupils without exception made progress. The number of additional comments made by the various subjects ranged from two to ten. The success of this experiments is particularly evident if it is recalled that half the pupils tested with Set I experiments made no use whatever of the information from the practical analysis.

It is indicative that retarded second-grade pupils that took part in Set II tests made a better showing in the repeat analysis of the object than fourth-grade pupils did in Set I conditions. The fourth-grade pupils enlarged the analysis mainly by making comments on the object in general, i.e., the analysis was generalized unspecific.

Thus, independent use of the data obtained by practical action to reveal peculiarities of the object is a task too complicated for mentally retarded children of the lower grades. This task can be accomplished only when the action is combined with verbalization of the results obtained.

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# Pedagogical Studies of children aimed at differentiating Oligophrenia from similar Conditions

Practically it is difficult to draw a line between oligophrenia and conditions similar to it. In drawing this boundary, pedagogical observation of the child during experimental instruction acquires particular importance. We investigated two types of pseudo-oligophrenic conditions, 30 cases of delayed development (infantilism) and 70 cases of the asthenic condition. On the basis of clinical data, pedagogical observation of children of both groups was undertaken along the following five main lines:

1.Investigation of intellectual abilities. A number of psychological- experimental methods were used to establish the actual and the potentialities of development. During the experiment it was necessary to render various forms of assistance, and to analyse how the child made use of this assistance and what type of assistance he needed.

2. In the investigations of backward schoolchildren their capacity for work was carefully investigated. We set tasks to the children and attempted to analyse how they interpreted them, how they overcome difficulties, retained the instructions and to what extent they followed them.

3. In investigating backward children, it is exceptionally important to take into consideration their personal pa-

culiarities. It is most essential to know their attitude to situations (taken from their anamnesem), reaction to the school atmosphere and behaviour in the experimental conditions. An analysis was made of the child's attitude towards the task, appraisal and self-appraisal, control in activities and regulation of behaviour.

4.Determination of the general level of development. This implies the scope of the child's knowledge, his stock of notions, and orientation in geographical conceptions and historical events.

5.Study of the state of school habits in the light of doctrine on the cortical functions. Difficulties in arithmetic and their causes were analysed in order to establish a clear picture of the causes of these difficulties: spatial disturbances, lowered work capacity or mental deficiency. Difficulties in learning to read and write were considered in connection with speech disorders. Deficiency of phonemic hearing or defects in pronunciation may be the case of writing disorders. Establishment of the connection and inter-dependence of individual symptoms made it possible to reveal the inner dynamics of the process and, consequently, provided the key to the practical solution of the pedagogical problem.

The chief difficulties in teaching backward children due to the predomination of infantile mentality: absence of school interests, inability to comply with the teacher's requests, to concentrate on tasks, to carry out instructions, uninhibited behaviour. The teacher concentrated his attention on correcting all these shortcomings. The above peculiarities led to neglect education which caused additional teaching dif-

ficulties. The following methods were applied in teaching.

1. Fixing the child's attention in order to make his accept the task and set to it.

2. Use of play elements at lessons with a gradual transition from play to school activity, in the subsequent stages play was also used as an encouragements.

3. Psychotherapeutic talks with the child.

4.Leading the child up to independent fulfilment of tasks and appraisal of his own work.

The main peculiarity of asthenic children is lower capacity for work, rapid exhaustion, inability to exert themselves for a lengthy period, inability to independently organize their activities. The right methods of correction can be found only by studying the causes and peculiarities of the difficulties encountered by children with a normal mentality.

A certain amount of preparatory work had to be done before failure in individual subjects of the school programme could be overcome. This work consisted in establishing contact with the child, forming a positive attitude towards studies, development of preparedness to overcome difficulties, raising his self-reliance, installing the right attitude towards the teacher and studies, the development of purposefulness and an interest in the results of his work.

The following types of assistance were rendered children during instruction:

a) Breaking down of tasks (transition from the difficult to the easy).

b) Presenting the tasks in easier form(in case difficulties are encountered) view to subsequently passing from the

simple to the difficult.

c) Teacher's help designed to teach the child to do his tasks alone. The following was done to reduce fatigue:

1. Change to other forms of activity;

2. Doing things other than study(tidying up the classroom, putting away teaching aids, toys).

3. Showing pictures, reading stories.

4. Story-telling by children.

5. Story-telling by teacher,

## Peculiarities of Corrective Work

### READING

The children read incorrectly, made many mistakes, missed lines, failed to read word endings, missed syllables,etc. Moreover, they did not realize they were making mistakes.They were reading too fast. It was necessary to begin with syllable by syllable reading. They were taught to pronounce sounds together indenpendantly of the text on letter blocks, the syllables were pronounced by the children in a sing-song. After this the reading of words was begun; the enture word was not shown at once but was disclosed gradually, syllable by syllable.Mistakes that were made in pronouncing consonants together (vowels were placed between them) were overcome as follows.The teacher put several letter blocks together and suggested that the child read the combination quickly and coherently. At the same time the children were taught to differentiate and use the conceptions sound, syllable and word. Gradually the reading habit became automatic. Children learned to write by sound and to copy texts from books on the basis of real sound--letter analysis.

ARITHMETIC

Learning to count was considerably more difficult. The children could not at once grasp what the composition of the figure comprised; and when they did grasp it they did not know to use it in arithmetical operations. Only when they grasped the composition of the figure, the problem of counting orally up to 10 was solved.

After they had mastered the conception 10, it was easier for them to count orally up to 20. The conception of the difference between values had to be developed in pupils of the 1st, 2nd, and even 3rd grade. If the problem said "greater by so much", the children could not explain what this means, and mechanically added up the figures in the problem. If the problem asked by how much one figure was greater than the other, they added up the figures merely because the word "greater" was used.

Differentiation between these two conceptions was taught by special tasks.

All the above ways and methods were applied in an effort to develop the child's personality, broaden his scope of ideas and interests, organize his behaviour and activity, and make use of the children's potentialities. They have been pedagogically effective and may serve as a criterion in drawing the line between oligophrenia and conditions resembling oligophrenia.

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# PATTERNS OF THE INTELLECTUAL DEFECT IN CHILDREN AND ADOLESCENTS WITH ANOMALIES IN THE SYSTEM OF SEX CHROMOSOMES

## Shereshevskii-Turner Syndrome and Kleinfelter Syndrome

The various degrees of mental retardation is one of the characteristic symptoms of abnormalities in the system of sex chromosomes.

The study of the structure of this defect in children and adolescents with the Shereshevsky-Turner and Kleinfelter syndromes was the purpose of this work.

This paper contains the results of clinical and cytogenetic study of 75 patients with various abnormalies in the system of sex chromosomes (50 patients between the ages of 5 and 25 with the Shereshevsky-Turner syndrome, and 25 patients between the ages of 12 and 23 with the Kleinfelter syndrome), who were under the observation at the Institute of Defectology of the USSR Academy of Pedagogical Sciences. Some of them were selected during a mass survey of sex chromatin in pupils of special schools in Moscow. Of 1890 children examined (1197 boys and 693 girls) 12 had the Kleinfelter syndrome and two the Shereshevsky-Turner syndrome.

The others were examined at the Institute of Endocrinology and Hormone Chemistry of the USSR Academy of Medical Sciences and at the Pediatrics Institute of the USSR Academy of Medical Sciences. The karyological investigations were made by K.N.

Grinberg at the Institute of the Morphology of Man of the USSR Academy of Medical Sciences where A.A. Prokodeva-Belgovskaya, Corresponding Member of USSR Academy of Medical Sciences heads the cytogenetics laboratory.

The studies were directed by Professors G.E.Sukhareva and M.S. Pevzner.

The diagnosis of the chromosome abnormality was based on clinical data and the results of karyological and hormone investigations.

1.All those examined who had the Shereshevsky-Turner syndrome had a peculiar infantile intelligence. This is expressed in a combination of childish and senile features both in outward appearance and intelligence. While their growth is obviously retarded, they look older than they really are. Their facial expression, gestures and manners resemble those of an adult but their behaviour is childish. They are childishly capricious and affected, at the same time susceptible to suggestion and obstinate, like to attract the attention of adults, readily accept their patronage even in adolescence. They take an active interest in younger children and try to order them about. When with children of their own age and adults they are suggestible and dependent. Infantility persisted even in patients 20 to 25 years old.

At the same time along with immature opinions, infantile reactions and play interests, they revealed unchildish gravity, ratiocination, circumspection and an inclination to verbosity.From the pre-school age many sometimes exhibit an extraordinary interest in domestic trivia, are calculating and have possessive inclinations. At pre.school age, senile features are especially striking against the background of general infantilism. In adolescence

reactions, due to underestimating of their deficiency, were observed from time to time.

In most children the intellectual defect was not clearly expressed and they usually graduated general sch[illegible]. However, development of higher psychological functions was [illegible] particularly in the field of thought. The process of thinking was distinguished by slowness, sluggishness, thoroughness, a tendency to verbosity, and too much detail. In the process of learning all the children without exception displayed purposefulness, a high sense of duty, persistence in attaining their aim, conscientiousness, diligence, and thoroughness. In all probability these personal peculiarities to a certain degree make up for mental insufficiency and this makes it possible for these children to graduate the general school. Three of the patients revealed oligophrenic dementia at a stage of slight debility. In these cases the defective aspect of cognitive activity was combined with features of infantilism, characteristic of the rest of the subjects.

Thus, the Shereshevsky-Turner syndrome goes hand in hand with clearly defined and characteristic mental peculiarities which vary at different ages. This is a peculiar mental infantilism with

slight euphoria and an insufficiently critical approach to their defect when considered against the background of a low intellect combined with a good capacity for work, practical orientation and adaption to everyday life.

II, The mental peculiarities in the Kleinfelter syndrome are more polymorphic. Of the 25 adolescents observed, 14 had oligophrenic dementia at the stage of slight debility. The rest had a low level of mental development which, however was higher than that of oligophrenics. Typical of all patients with the Kleinfelter syndrome, regardless of the intellectual development level, was the decrease of mental activity, feeble motivation and incapability of a sustained effort. These specific features create a peculiar structure of the mental defect in oligophrenic patients with the Kleinfelter syndrome and distinguish them from patients with other forms of oligophrenia.

III. Mental peculiarities of children and adolescents with the Shereschevsky-Turner and Kleinfelter sydromes must be taken into consideration in teaching these children and recommending treatment.

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# SPATIAL ORIENTATION IN MENTALLY RETARDED CHILDREN

The space orientation of oligophrenic children has been little studied. Teaching experience, clinical and physiological investigations give a general idea of the deficiencies in the development of practical space orientations of these children. It is especially noticeable in the lower school age.

A more thorough study of this problem would supplement the data available on the development of cognitive activity in mentally retarded children. It is also necessary in order to determine the most effective ways and means to accelerate and improve the instruction of these children in the basic forms of space orientation.

A psychological analysis of the features of space orientation of oligophrenic children is important for planning the investigation interpreting the data obtained.

By the time normal children are 5 or 6 years old, they possess rather precise orientation along changing directions. Special psychological experiments have shown that oligophrenic children of school age even after several years of teaching, do not attain this level of space orientation.

They find it especially difficult to determine mentally changing directions relatively to another person and still more difficult in regard to the picture of a person.

Peculiar errors in comprehension of spatial relationships are made by oligophrenic children when they are taught geography and, in particular, when they study the system of elementary orientation according to the cardinal points with or without a compass and on a geographical map. The difficulties they encounter are especially evident when they must solve problems with a combination of various systems of orientation such as changing and constant directions, verbal instruction and the compass. It is well known that multi-component activities are always battling to retarded children.

There is a noticeable lack of uniformity in the progress made in solving such problems by debile children. Some of them (considerably fewer in number) cope with the task satisfactorily, others are not sufficiently accurate, and some find it so difficult they cannot perform the task at all.

A system of especially elaborate practical tasks to a certain degree helps to overcome the difficulties in these types of orientation.

At school, at work and in the home it is very important to be able to orient oneself on a plane (on a sheet of paper, the table, the blackboard, the bench top, etc.). The various mistakes in planar orientation made by oligophrenic children may be expressed in inability to properly arrange a simple drawing or picture, or to distribute work tools efficiently. Frequently, these shortcomings are overcome in the course of well organized drawing activity.

During drawing the perception and comprehension of the depth of space are trained and improved. The retarded younger pupils often portray objects located at various distances on one line. Oligophrenic children are not sufficiently aware of the indications of space depth (obstraction of one object by another, foreshortening, apparent change in colour and volume of objects as they recede from the spectator).

Drawing greatly helps to correct these defects since a purposeful analysis of the space relationship of objects more effectively reaches their comprehension than simple observation.

During corrective work special attention must be given those pupils who prove helpless when they are asked to find a house by its address, to follow a certain route according to verbal instructions, etc. Such children frequently find it difficult to carry out such tasks as "put it in the upper left hand drawer", "find the third book from the left", etc. Such children in particular require systematic corrective exercises since they may fall into most difficult situations as soon as they are left to their own devices. This is mainly true of oligophrenic children with Down's disease.

In a number of cases a discrepancy is observed between

the general level of the pupil's progress and his space orientation.

All mistakes made by children in the solution of space orientation problems were analysed after fact-finding tests. During subsequent training experiments certain unused potentialities in teaching children were established, which permit to improve considerably space orientation.

It is of prime importance that the physical training lessons be well organized since physical training provides a reliable basis for the development of space orientation.

As known, organic lesions of the central nervous system cause specific, occasionally serious disturbances in perception and representation of spatial relations. However, children also make many errors that are due to insufficient training.

Proper employment of speech in teaching mentally retarded children is very important for the successful development of space orientation. In particular, description and planning of by oligophrenic children of their actions and their estimations, and precise formulated verbally have a favourable effect on the development of space orientation and reduces the number of mistakes made by them.

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# DEVELOPMENT OF PERCEPTION BY TOUCH IN OLIGOPHRENIC CHILDREN

The development of touch has been extensively investigated in recent years. A special study was made also of perception by touch in children with damaged aural and visual analysers. However, the development of this perceptive activity in oligophrenic children was given little attention.

The purpose of this work was to determine the peculiar features of the development of perception by touch in children of auxiliary schools. The investigation consisted of two sets of experiments. In one set the children were given ordinary familiar three-dimensional objects to recognize. These were wax models of pears, a porcelain children's saucer, a wooden toy pyramid and a plastic donkey. In the other set of tests the children were given objects that represented an outline of one of the projections of the same objects that were presented in three-dimensional form (hereafter referred to as flat objects). The flat objects were made of plastic and or plywood.

The experiments involved pupils of the 1st, 5th and 7th grades of auxiliary and general schools (60 normal children and 60 oligophrenic children).

An analysis of the results revealed that the number of times the oligophrenic children recognize the flat and three-

-dimensional objects increases throughout the period of study. When flat objects were touched correct answers increased from the 1st through the 7th grade from 20% to 35%; when three-dimensional objects were touched they increased from 65% to 80%. The number of correct answers given by normal children asked to recognize flat objects in the respective classes was 45%-75%; recognition of three-dimensional objects-85%-100%.

These data indicate that the difference between normal and oligophrenic children is most striking in the recognition of flat objects. Flat objects lack a number of features easily perceived by touch hence, they can be recognized only by a careful study of the contour; this means that the children tested must perform highly complex mental operations.

Recognition of flat objects by 1st grade pupils of auxiliary schools was reduced mainly to attempts to discover what the object was made of. Even this involved grave mistakes. For example, the plastic pear and the saucer, were described by the oligophrenic children of the 1st grade "rubber".

The 5th and 7th grade pupils began to name the material more correctly, and at the same time in 20% to 25% of the tests the pupils indicated that they had been given some kind of object. They said "a glass of some kind", "A plastic of some kind" and in this way tried to show that they were dealing with objects.

The increase in the number of times were correctly recognized and the change in the tems used are evidence of the development of touch in oligophrenic children attending school. This development is somewhat more clearly evident in the lo-

wer grades. However, the data obtained does not indicate a gradual decrease in the difference between normal and retarded children as was clearly revealed by comparison of the results of the same tests made with deaf and children with normal hearing. Often pupils of intermediate grades of auxiliary schools recognized objects less positively than normal 1st grade pupils. First-grade pupils of general schools in most cases tried to specify not only the material and also to describe the shape of the object. By the fifth grade of general schools, mention of the material became rare. Right up to the seventh grade class pupils of auxiliary schools were satisfied merely to name the material, i.e., they stop at the simplest form of recognition.

The experiments show that all the subjects recognized three-dimensional objects more easily than flat objects. And in this case too there was a marked difference between normal and oligophrenic children. For example, when given the figure of the donkey to recognize seventh grade auxiliary school pupils said it was "a dog", "a camel" or "a squirrel". No such mistakes were made by normal children in the fifth grade. Throughout the period of study, the level of development of perception by touch in oligophrenic children remains considerably below that of children in the corresponding classes of general schools.

Despite the fact that the sense of touch develops in auxiliary school pupils throughout their school years, it does not always develop according to the accepted pattern for normal children. There were frequent cases when seventh-grade

auxiliary school pupils who had named objects correctly a number of times reverted to the level typical of lower-grade pupils. The serious mistakes made by oligophrenic children are explained to a certain extent by the fact that they tried to identify the entire object by one or two of its separate parts. Auxiliary school children were usually satisfied by their first identification and made no attempt to change or check it. Consequently, the identifications given by them were frequently of a chance nature: the first association aroused by some feature of the object determined the character of the answer.

When examining the objects, general school pupils used what are known as complex forms of recognition. After their first acquaintance with the object, the subjects continued to examine it and as a result they either changed or confirmed their identification. Complex forms of recognition comprised 60% of all the answers given by general school pupils and 10% of the answers given by auxiliary school pupils.

Thus, the low level of development of perception by touch is undoubtedly a consequence of general mental retardation.

As the child develops and is taught, there is an improvement in all aspects of his cognitive activity, including touch. Nevertheless, special exercises must be employed for more effective and rapid development of touch in oligophrenic children.

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# VISUAL PERCEPTION OF PORTRAYED OBJECTS BY RETARDED PUPILS

Beginning with the primary forms, the school curriculum demands that the pupils be taught to distinguish objects by appearance. Hencem investigation of this problem has both theoretical and practical significance in teaching at auxiliary schools.

The purpose of this investigation was to observe the development of visual perception of portrayed objects known and unknown to the children.

The basic theoretical principles used in studying of this problem were the following:

There exists no such thing as an isolated process of "pure perception"; it is connected with other mental processes. Most close is the connection between perception and speech and thought.

Perception cannot be reduced to an act of instantaneous comprehension: it develops with time, in the course of which it becomes deeper and more precise depending on the task set and the appropriate organization of the process of perception.

The main trend in the development of perception is transition to more complex forms. Speaking of these forms, as applied to visual perception, the noted Russian physiologist Sechenov called this the "detailed vision reaction", contrasting it with the simpler process of integral grasping of the object at a glance.

While perception is a reflection of actual reality, it is also closely connected with personality traits such as needs, interests, past experience and knowledge in a particular field.

By appropriate organization perception can be raised to a higher level. A number of investigations by Soviet psychologists have confirmed this principle which is very important in teaching.

In this study, both fact- finding and teaching experiments were used. The test material consisted of specially prepared coloured pictures of objects belonging to various domains (animals, plants, machines), and also visual aids (tables, pictures from books) used in school.

The method of presenting the material was different in each set of experiments: along with a brief display by means of a tachyscope which made it possible to observe the process of development of perception with time, observation with no time limit was also used. The order in which the material was presented also varied. The object shown had to be named and then recognised among other objects with a varying degree of similarity, located differently in space and in different situations. Analysis of the experimental data showed the following:

Visual perception of portrayed objects by auxiliary school pupils develops with age both in respect to quantity and quality. Children begin to recognize more rapidly a larger number of objects from various domains and at the same time the process of recognition formation assumes a different pattern. In the primary forms perception is characterized by insufficient differentiation and little detailization. Recognition of the object is generally based on insignificant ca-

sual distinctions that not more than one or two in number; the process of development of perception (compared to that of normal children) is distinguished by the length of time required and a definite stereotypy. In the upper forms (fifth and sixth) there is a marked progress in such aspects of visual perception as greater recognition of details, the ability to single out important features(the number of distinguishing features noticed increases to four to six), and also there is a certain sequence is evident in the process of development of perception. As the children grow older, the significance of verbal components (nomination and reasoning) in recognition becomes greater.

Recognition of the objects displayed is affected by such features as change in position in space, degree of superficial resemblance to other subjects, and inclusion in a new situation. The sequence in which the material is presented is very important.

a) Correct recognition of the object becomes more difficult as it is removed from its accustimed position(shown straight, at angles of 90, and 180°). In the lower forms the difference in recognition of objects in straight and altered positions in space is greater than in the higher forms. Such features of the object shown are of significance as its orientation in space and distinctive outlines are important too.

Objects with poorly defined orientation in space, having no clearly expressed top and bottom and placed in different positions are recognozed similarly in any position.

Peculiarities in the perception of pupils of auxiliary schools are expressed in the mistakes they make when recog-

nizing objects clearly oriented in space and with a distinct top and bottom. Errors in perception are especially great when the position of objects is changed and they outwardly resemble other objects in their customary position. Such recognition of objects in altered position as other objects in normal position constitutes undoubted simplification of the objects being recognized and is typical of retarded children.

Furthermore, incorrect perception of the object in an altered position leads to distortion of the content of the picture.

b) Difficulties in recognition begin also when the pupil must distinguish a definite object from other objects of similar appearance. A consequence of this is the following fact which has important implications for teaching: recognition and correct naming of a familiar object presented alone and always in the same surroundings does not mean that the object will be recognized everywhere in all cases(altnough the teacher may get this impression).

c) The sequence in which the material is shown is important in recognition. One object shown before another influences perception of the second. The result is that one and the same object is recognized by one and the same pupil better or worse, depending on the object's place in the sequence.

In the teaching experiment, the transfer phenomenon was clearly evident: training in precise distinctions on one material made it easier to recognize other material. The use of such an important didactic method as comparison was decisive in this experiment.

When retarded children are acquainted with objects and their pictures it is necessary to vary the conditions of perception, such as: a) showing the object in diverse positions; b) presenting visual material in a manner that will stimulate the pupils to make comparisons themselves, to more intensive intellectual activity when distinguishing the given object from others that outwardly resemble them; c) altering the situation in which the object is included.

The progress made by the pupils even during the short experimental teaching testifies the potential abilities of the pupils and the good results that can be attained through rational use of visual aids.

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# CORRECTIVE WORK WITH MENTALLY RETARDED CHILDREN SUFFERING FROM CEREBRAL PARALYSIS

The mental development of children suffering from cerebral paralysis particularly from an early age is inhibited by motor disorders. Difficulties in locomotion hamper their association with children; motor disorders make it impossible for them to take part in group games, to play with their toys, and engage even in the simplest game activities, which are highly important for the development of the child's cognitive activity, and limit the experience typical of their age group.

Consequently, many children suffering from cerebral paralysis are considered mentally retarded although neuropsychoanalysis shows that their intellect has not been impaired and work aimed at restoring their motor functions is promising from the viewpoint of their education and making them fit for certain kinds of work.

This work aimed at restoring the motor functions that helps increase the possibilities of children with cerebral paralysis is highly important for their mental development. The children begin to take an interest in things, the people around them, it arouses their initiative, desire to be independent, broadens their outlook, and range of knowledge.

Progress in the mental development of children suffering from cerebral paralysis is intensified by treatment with preparation that have a normalising effect and make rehabilitation work more effective.

Our experience in promoting the mental development of children with cerebral paralysis served as the basis for corrective work with mentally retarded children suffering from cerebral paralysis. Oligophrenic children have symptoms of diffused afflictions of the cerebral cortex and this seriously

hampers readjustment of the functional systems and rehabilitation of functional disorders at the expense of a different reference. Consequently many authors consider mental retardation a counterindication to the treatment of children with cerebral paralysis. They take a sceptical to the work done with mentally deficient children for restoring their motor functions since they are incapable of understanding the work aimed at correcting the motor defects.

Solution of this problem is of great practical significance since, according to literature, 30-45-50% of the children with cerebral paralysis have mental disorders ranging from temporary retardation to idiocy.

Earlier we pointed out that mentally retarded children do not independently realize the results achieved in correction motor defects and therefore it is particularly important to use preparations that normalize inhibition and excitation processes in the cerebral cortex. For this reason we used widely injections were the Soviet preparation of 0.25% galanthamine, in doses appropriate for the age of the child. The results of clinicopsychological tests made before and 40 minutes after injections were compared. Under dynamic observation we had 30 children with oligophrenia in the debility stage due to various forms of cerebral paralysis. Most of these were tetraparesis cases (18 children out of 30).

Here we report one of the observations made together with E.N.Pravdina-Vinarskaya.

P.K., 16, suffers from profound debility and subdued tetra-paresis after meningoencephalitis at the age of eight months. No more than one hour after an injection of 0.5 ml of 0.25% galathamine P's facial expression became animated, his hands began to move noticeably more quickly and with greater ease, he began to perform tasks and change from one movements to another more quickly. The changes were especially evident after 10 injections of the preparation. He began to independently perform a number of personal everyday functions around the home, readily helped his mother and the clinical manifestations of tetraparesis decreased noticeably. The electroencephalogram clearly shows changes in the electric activity of the brain that

began after the 1st injection of galanthamine and a definite increase in the amplitude of the alpharhythm. The EEG made after the 10th injection shows a significant increase in the alpha rhythm amplitude. The observations confirmed by the EEG prove the doubtless effectiveness galathamine had for P.K., who suffers from oligophrenia and infantile cerebral paralysis in the form of tetrevaresis,

In conclusion we present two photos of the H., 11, third-form pupil at an auxiliary school. She had considerable difficulty in learning due to disturbed concentration of attention, retardation of mental processes, and low work capacity.

Photos Nos. 1 and 2 were taken prior to treatment and show how difficult and awkward it was for the girl when she placed the thumb of her right hand against the rest of her fingers and the imitation synkinesis of the left hand that accompanied this movement. A similar synkinesis was observed in the fingers of the right hand when the left fingers of the hand were moved. There was momentary oral synkinesis that was more evident when the thumb of the right hand was placed against the other fingers.

Photos Nos. 3 and 4 taken after the first injection of 0.3 ml of 0.25% galathamine show the precise and differentiated movement of the thumb and the rest of the fingers on both the right and left hands. Oral synkinesis has disappeared.

There is a striking change in the facial expression; it has become more concentrated and intelligent.

In the course of the treatment the girl began to make better progress in her school studies, her speech became more explicit and she began to readily do the tasks assigned to her.

The examination made six months later showed that the improvement was stable.

We also widely employed injections of vitamin $B_{12}$ from 200 to 500 , giving 15 to 20 injections, and also pyrogenal beginning with intramuscular injections of 5 and increasing each injection by 3-5 until the dosage reached 40-50 . The

use of these preparations also brought about a significant improvement in the motor abilities of the children and in their mental processes.

The children began to master domestic and school habits more rapidly and concentration of their attentions improved. They became more active, sthenic and attentive. Our experimental work shows corrective treatment on mentally retarded children suffering from infantile cerebral paralyses can be effective. Hence, this type of work must be carried out extensively along with careful observation of the changes in the condition of motor functions and mental processes.

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